

WHAT IS CLAIMED IS:

1. A high load capacity hoist ring assembly adapted for installation to an object to be lifted at a required tensile value without the use of a torque multiplier or hydraulic tensioning device, said assembly comprising:

a shank member having a first end and a second end, said first end being adapted to engage said object;

a compression member adapted to being mounted against said object;

a retainer flange adapted to engage said shank member on said second end, a plurality of threaded holes at spaced apart locations in said retainer flange, said holes extending generally parallel to and spaced from said shank member;

a plurality of bolts adapted to threadably engage said holes of said retainer flange, said bolts adapted to separately receive a torque, said bolts being adapted to extend from said holes to compressively bias said compression member;

a lifting loop adapted to being captively engaged between said shank member and said retainer flange for rotational and pivotal movement; and

wherein said bolts are adapted to being torqued to a predetermined value to pre-stress said shank member to said required tensile value.

2. A high load capacity hoist ring assembly of claim 1 further comprising:

a retention ring in captive swivel engagement with said compression member and adapted to rotate throughout substantially a full circle; and

a transversely disposed pivot structure including opposed pivot pin elements respectively pivotally joining said lifting loop with said retention ring.

3. A high load capacity hoist ring assembly of claim 1 further comprising:

a thrust washer adapted to being disposed on said shank member between said compression member and said retainer flange wherein said bolt ends are adapted to engage said thrust washer and bias said thrust washer against said compression member when said bolts are torqued.

4. A high load capacity hoist ring assembly of claim 1 wherein said retainer flange and said shank member are one integral component.

5. A high load capacity hoist ring assembly of claim 1 wherein said retainer flange is adapted to threadably engage said second end of said shank member and said threadable engagement is adapted to being secured with at least one dowel bindingly driven through an opening in said retainer flange and into engagement with said shank member.

6. A high load capacity hoist ring assembly of claim 1 wherein both said shank member ends are threaded with an un-threaded portion therebetween, said threaded first end having a thread diameter greater than the diameter of said un-threaded portion.

7. A high load capacity hoist ring assembly of claim 1 having at least six said threaded holes in said retainer flange adapted to receive at least six said bolts.

8. A high load capacity hoist ring assembly of claim 7 having a load capacity rating of at least 10,000 lbs.

9. A high load capacity hoist ring assembly of claim 1 wherein said required tensile value is at least equal to or greater than <sup>the</sup> ~~said~~ load capacity rating <sup>of said hoist ring assembly</sup>.

10. A high load capacity hoist ring assembly of claim 1  
further comprising:

an additional plurality of holes at spaced apart locations on a  
periphery of said retainer flange; and

an additional plurality of bolts adapted to threadably engage  
said additional plurality of holes.

11. A hoist ring assembly having a load capacity rating of at least 10,000 lbs adapted for installation at a required tensile value to an object to be lifted, said tensile value being at least as great as said load capacity rating, said installation being capable of being accomplished without the use of a torque multiplier or hydraulic tensioning device, said hoist ring assembly comprising:

a shank member having a first threaded end and a second threaded end, said first threaded end being larger than said second threaded end and adapted to threadably engage said object;

a compression member having first and second ends and a bore adapted to slideably receive said second threaded end of said shank member, said bore being smaller than said first threaded end, said first end of said compression member being adapted to bear against said object when said assembly is installed;

a retention ring mounted for rotation about said compression member;

a lifting loop pivotally mounted to said retention ring;

a thrust washer adapted to being mounted on said shank member in load transmitting relationship to said second end of said compression member;

a retainer flange adapted to threadably engage said shank member on said second end, said threadable engagement being adapted to being secured with at least one dowel bindingly driven through an opening in said retainer flange and into engagement with said shank member, said retainer flange having a plurality of threaded holes at spaced apart locations about said flange;

a plurality of bolts threadably engaging said threaded holes of said retainer flange, said bolts adapted to separately receive a torque, said bolts being adapted to extend from said threaded holes against said thrust washer to compressively bias said compression member; and

wherein said bolts are adapted to being torqued to a predetermined value to pre-stress said shank member to said required tensile value.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100